HIFAN 1648a

ADVANCES IN HIGH EFFICIENCY COUPLING TO HEAVY ION DIRECT DRIVE AND APPLICATION TOWARDS SMALL TEST REACTORS (SUB MJ DRIVE FUSION AND FUSION-FISSION HYBRIDS)

by

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ADVANCES IN HIGH EFFICIENCY COUPLING TO HEAVY ION DIRECT DRIVE AND APPLICATION TOWARDS SMALL TEST REACTORS (SUB MJ DRIVE FUSION AND FUSION-FISSION HYBRIDS)*

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1-D Lasnex calculations show efficient (15 to 20%) hydro-coupling of heavy ion beams to direct drive targets without hohlraums at less than 1 MJ drive energy. Beam symmetry studies show that 60 beams may suffice with rotated beam spots on the ablator. NIF scale capsules with low aspect ratio A < 2 for robust RT stability show 1-D gains ~ 50 at drive energies of 350 to 450 kJ. Application to small heavy ion fusion test reactors with $<P_e$ net$>$ ~ 10 MWe, and to small fission fusion hybrids @ ~ 30 MWe net power scale are considered.

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